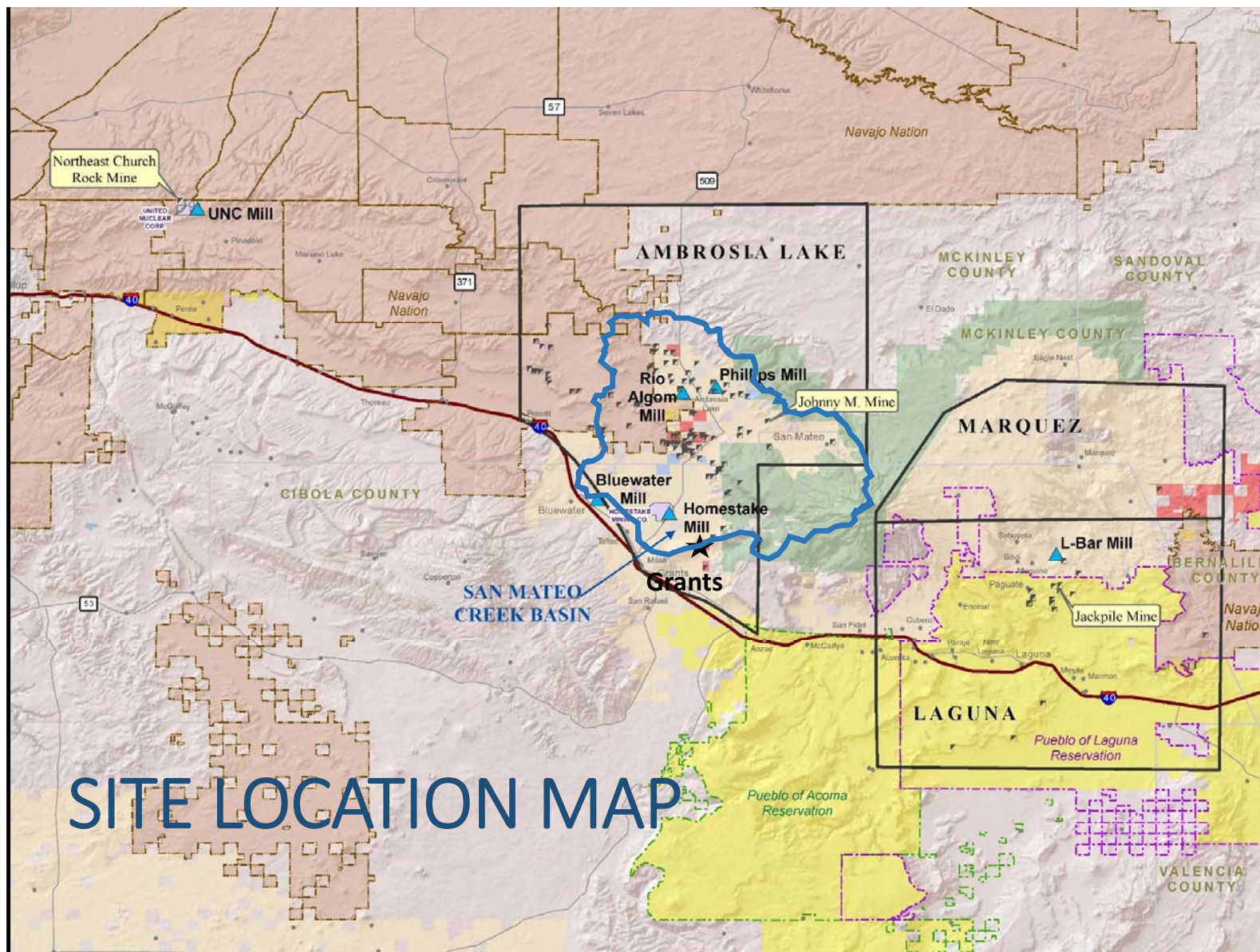


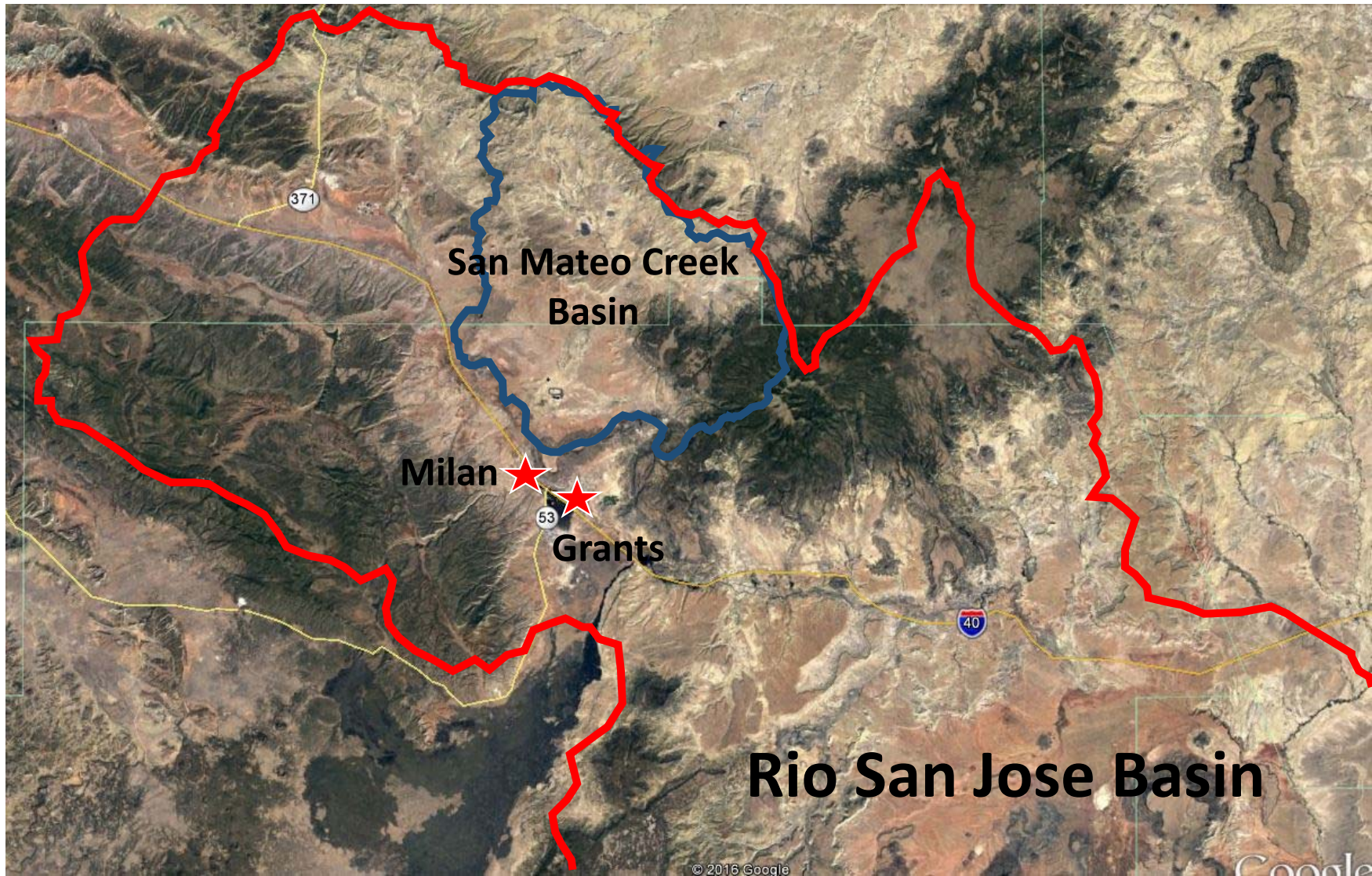


EPA GROUND WATER INVESTIGATION STATUS UPDATE

San Mateo Creek Basin Uranium Legacy Site

November 17, 2016 Community Meeting
Grants, New Mexico

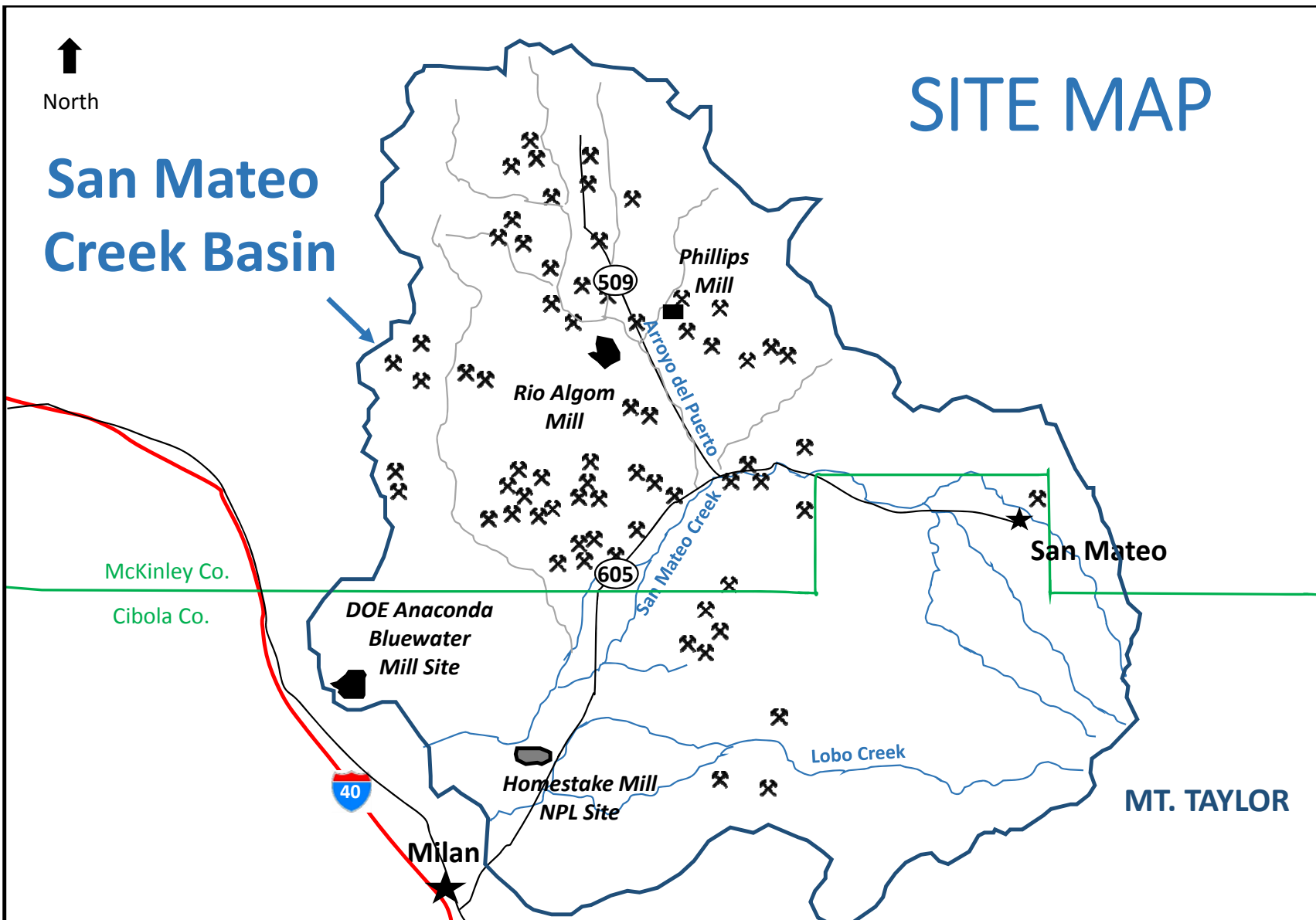






San Mateo Creek Basin

SITE MAP



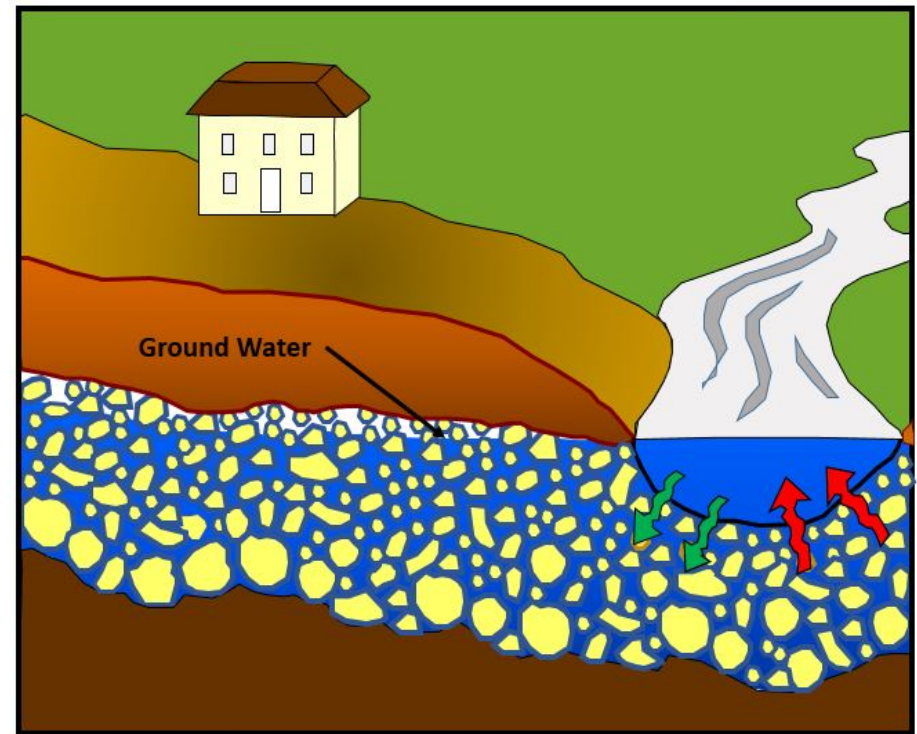
PROJECT OBJECTIVE

Assess ground water impacts by uranium mining industry



WHERE IS THE GROUND WATER?

- Alluvial Ground Water
 - Shallow ground water
 - At depths reaching **120 feet**
 - In sediments along drainages
- Bedrock Ground Water
 - Deeper ground water
 - Hundreds of feet deep

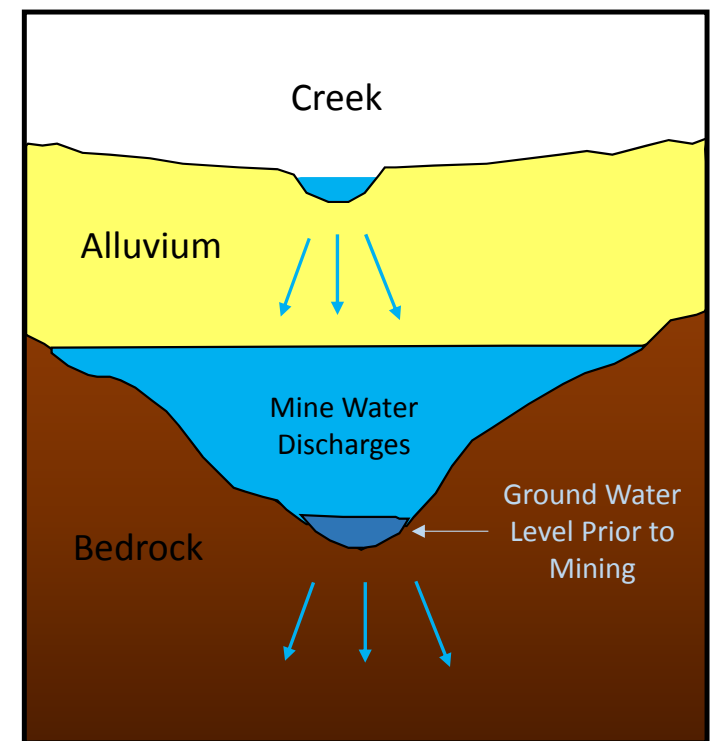


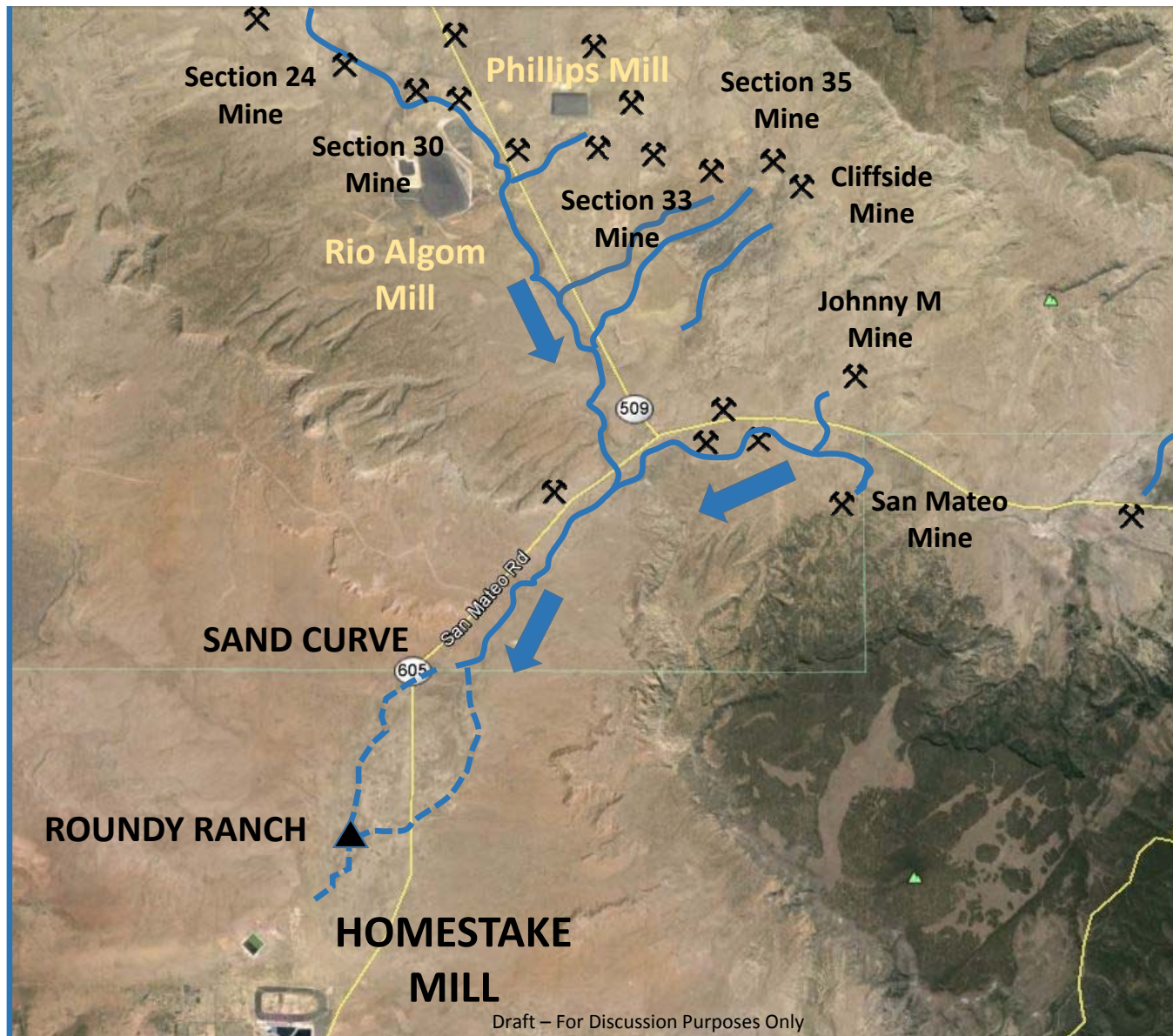
Modified from City of Las Cruces
Poster Display



HOW DID MINING OPERATIONS AFFECT GROUND WATER?

- ***Discharged billions of gallons*** of mine water to creeks and arroyos
- ***Created continuous flow of water*** in creeks and arroyos all year
- ***Water infiltrated*** into ground
- ***Increased amount of ground water*** in alluvial sediments and bedrock
- ***Changed quality*** of ground water





MINE WATER DISCHARGE

Artificially
Created
Year-Round
Flows in
Creeks
and Arroyos



MULTI-PHASED INVESTIGATION

Phase 1

Shallow Alluvial Aquifer
2012 – 2016



Wet Alluvial Sediments

Phase 2

Bedrock & Alluvial Aquifers
2015 – 2017



Bedrock Sandstone

Phase 3

***Conceptual Site Ground
Water Model***
2016 - 2018



Drill Bit and Piping

PHASE 1 ACTIVITIES COMPLETED

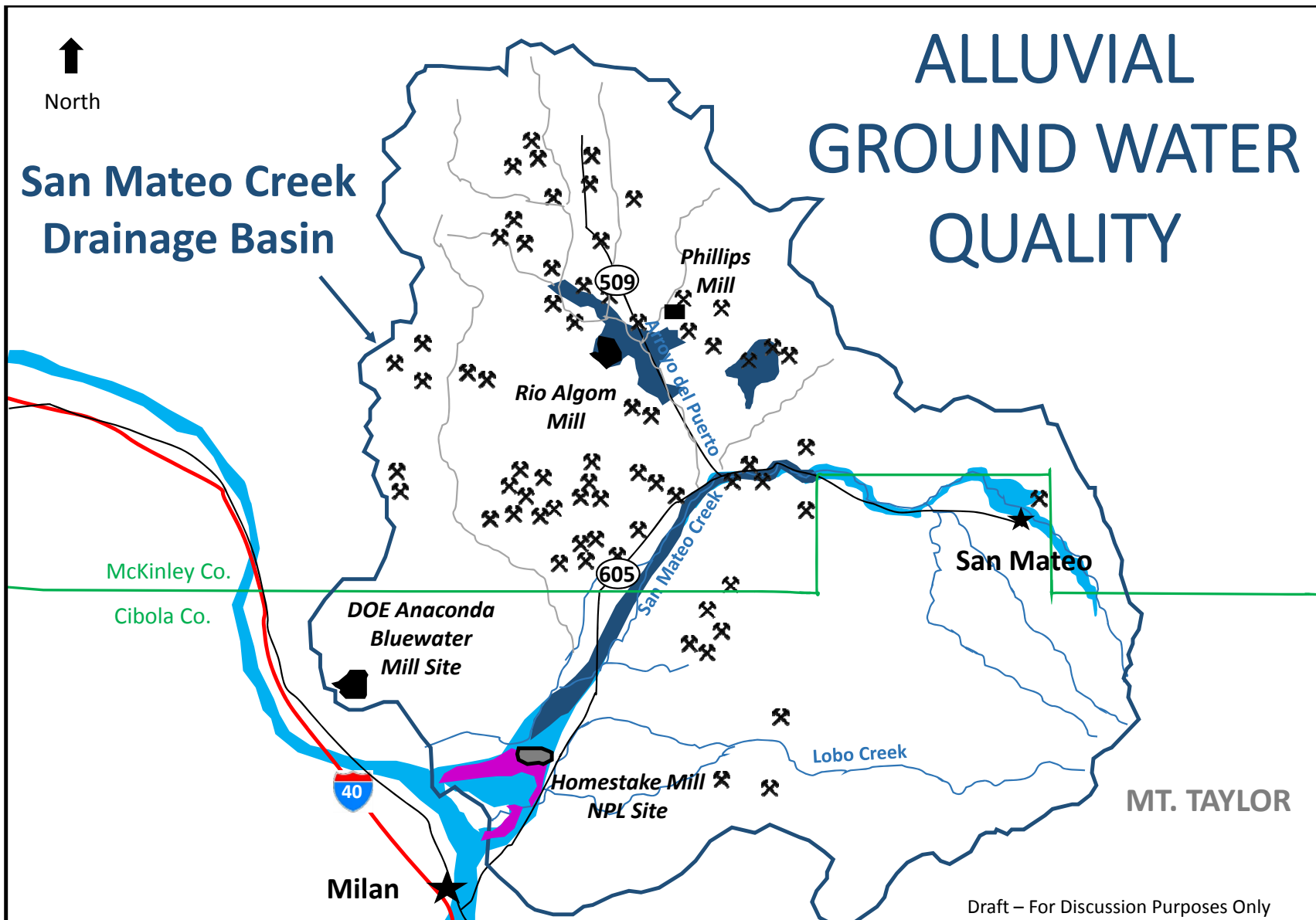
- **30** Boreholes Drilled
 - 6 monitoring wells installed
 - 24 boreholes dry
- **15** Existing Wells Sampled
 - 10 private wells
 - 5 industry monitoring wells



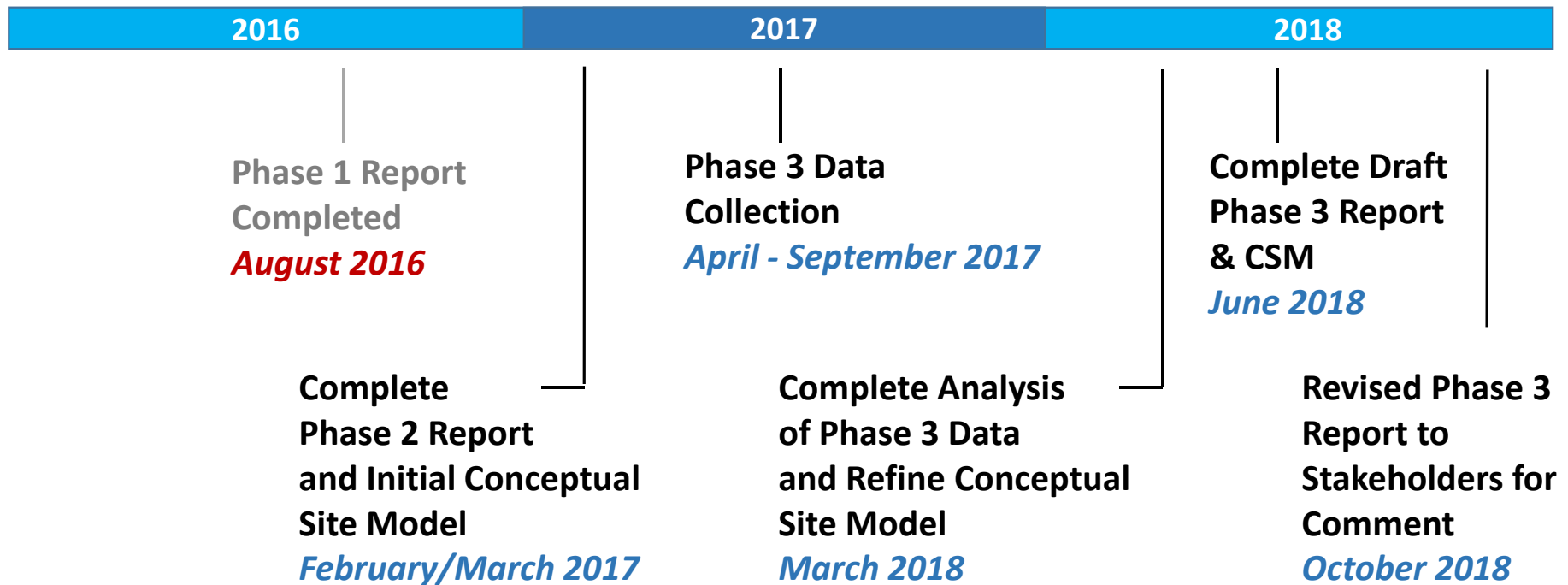
Core Sample

PHASE 1 RESULTS SUMMARY

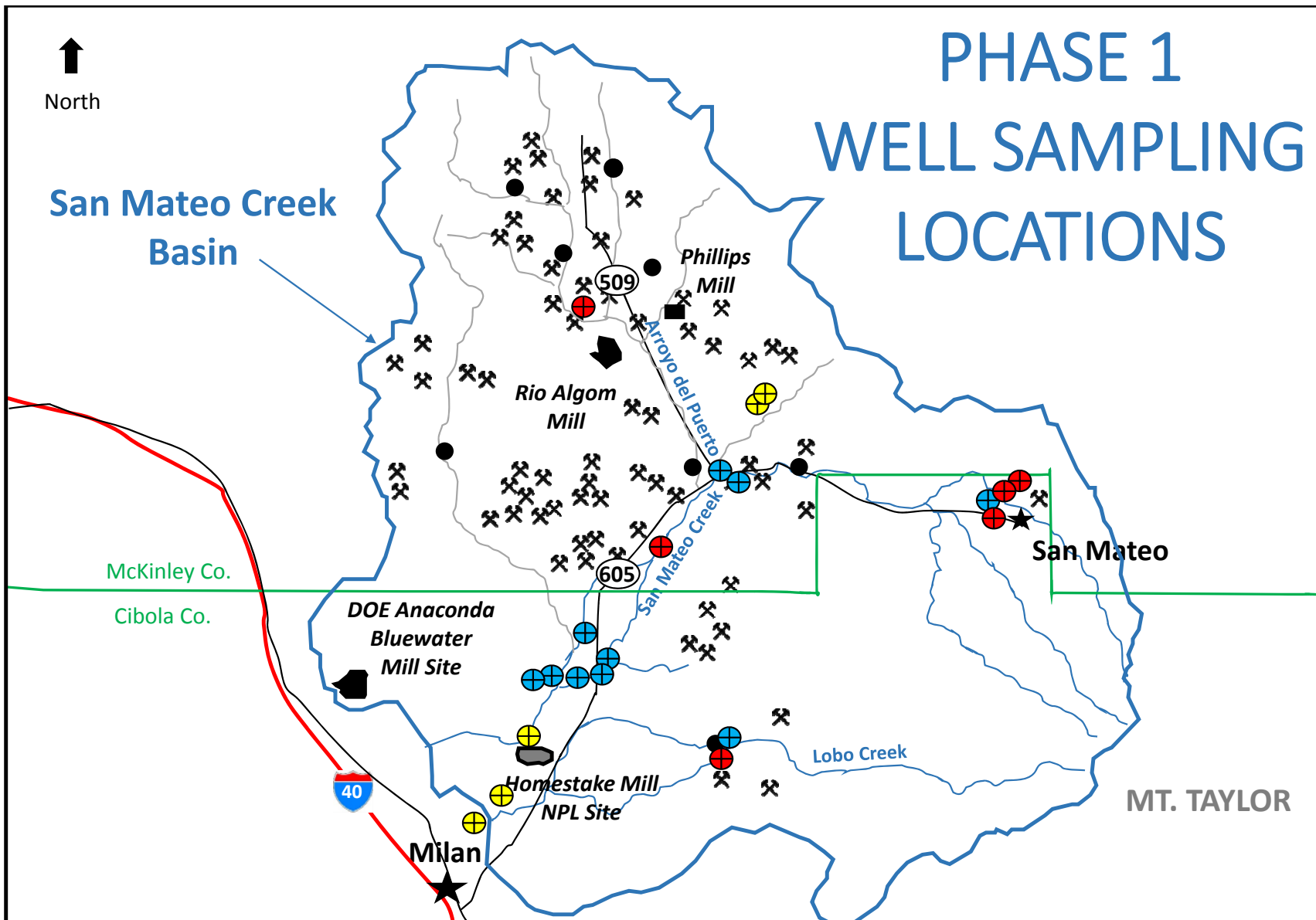
- Attempt to Characterize Alluvial Water Quality had **Mixed Results**
 - Lack of Natural Saturation in Many Areas Investigated
- Alluvial **Water Quality Varies** Across Basin
 - Good quality upgradient of mines and mills
 - Poor quality downgradient of mines and mills
- Mine Discharge Water **Increased Saturation** in Alluvium
- Mine Discharge **Water Draining Out** of Alluvium Today







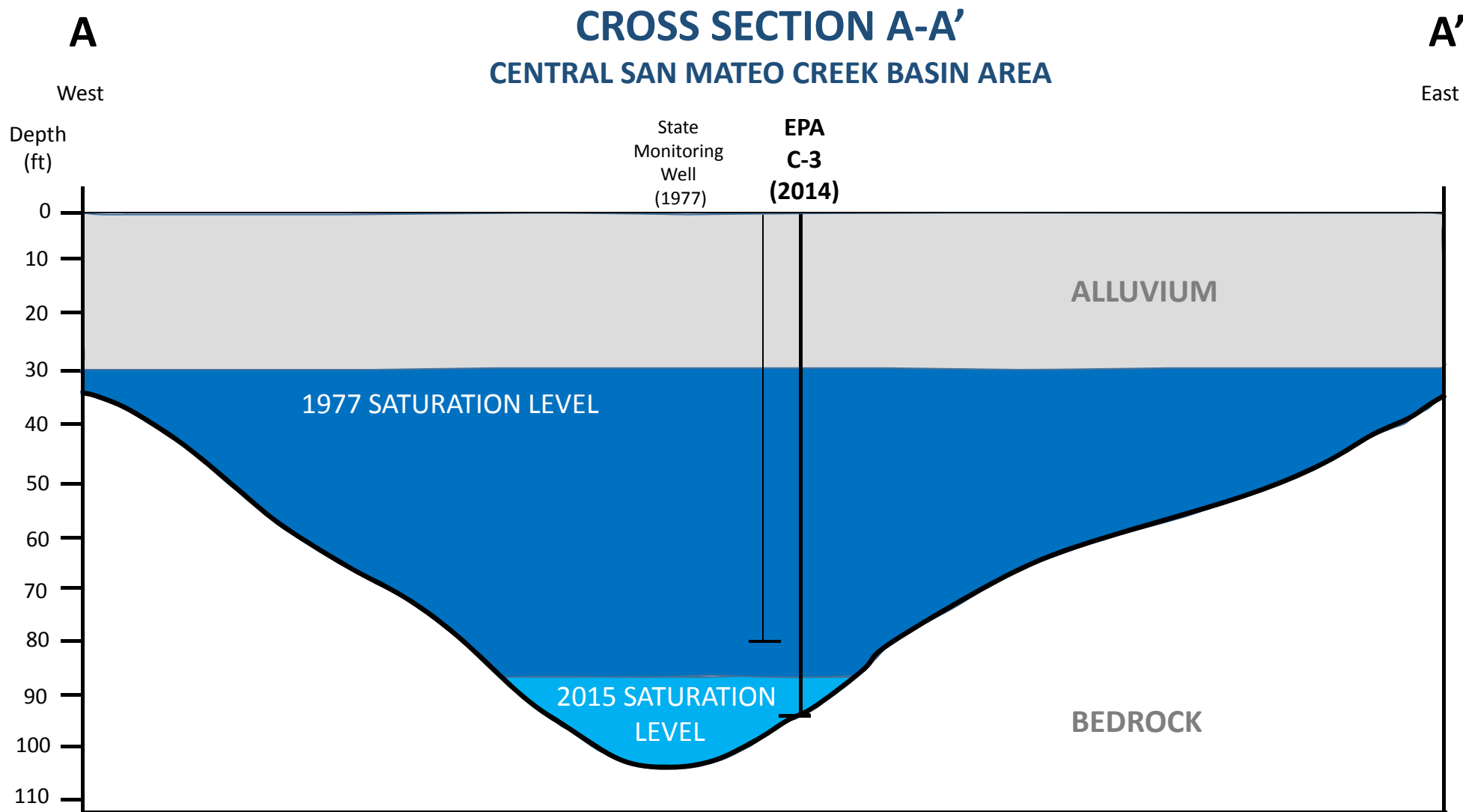
PLANNED ACTIVITIES FOR GROUND WATER INVESTIGATION



Other Slides



-  EPA Alluvial Monitoring Well
-  Industry Monitoring Well
-  Private Well
-  Dry Borehole

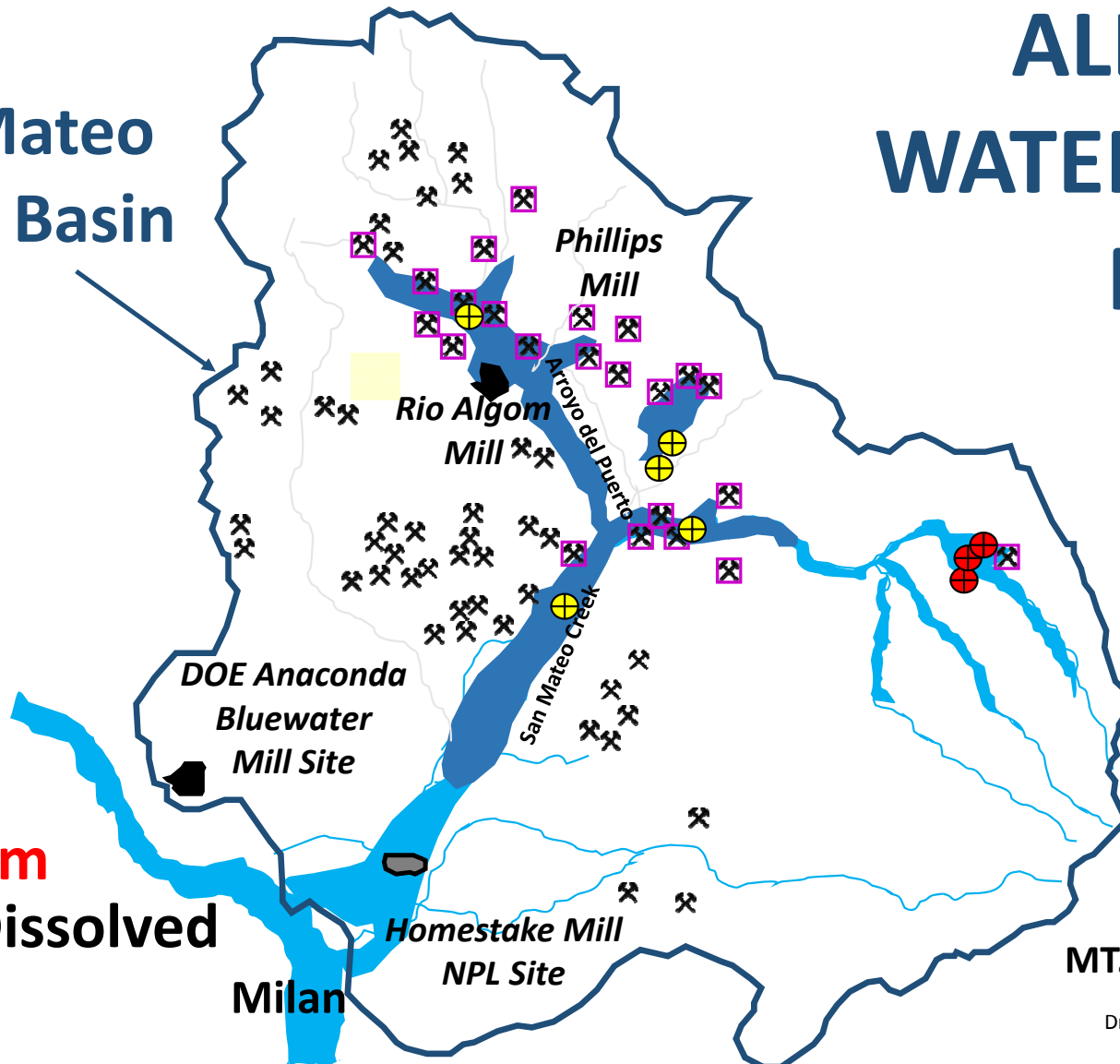





Draft – For Discussion Purposes Only

San Mateo Creek Basin

ALLUVIAL WATER QUALITY MAP

Uranium
**Total Dissolved
Solids**

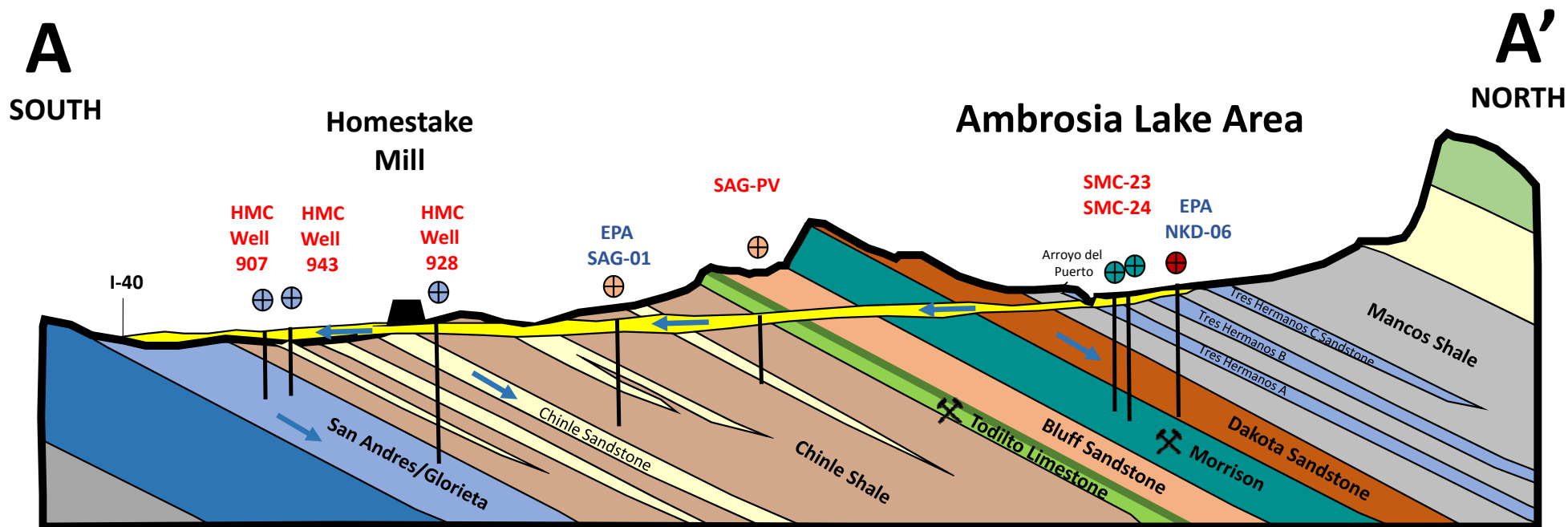


-  EPA Background Well
-  Well downgradient to Legacy Mines
-  Alluvial Water
-  Mine Water Discharge

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CONCEPTUAL SITE GROUND WATER MODEL

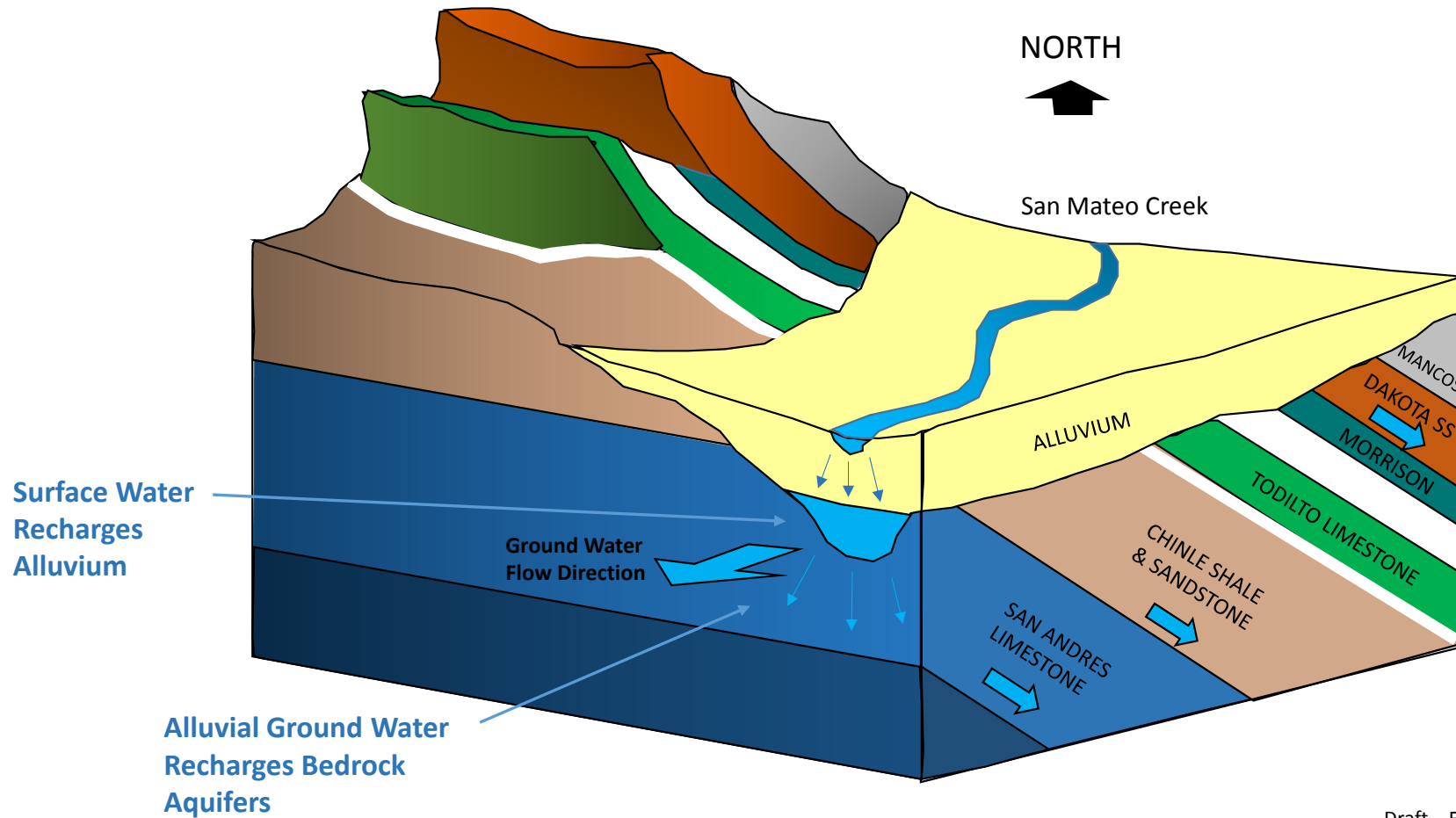
Generalized Cross Section Through San Mateo Creek Basin



5 Miles

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CONCEPTUAL SITE GROUND WATER MODEL



Draft – For Discussion Purposes Only

San Mateo Creek Basin

ALLUVIAL WATER QUALITY MAP

